

CLL  
E&I CRITICAL ITEM LIST

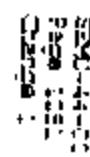
Page: 1  
Date: 09/24/80

08/01/80 SUPERSEDES 01/02/80

ANALYST:

NAME	FAILURE	CAUSE	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
R/F	MODE I	CAUSED		
047	CRIT			
PRESSURE TRANSDUCER, 2200 ITEM 215	215W05: Leakage at pressure sensitive interface.	END ITEM: between S&P tanks and strain gauge cavity.	GE INTERFACE: S&P oxygen tank pressurizes the strain gauge cavity between pressure sensitive interface and electrical feed through connector. Loss of S&P transducer output.	A. Design: In the event of diaphragm leakage, the strain gauge cavity is designed to contain the pressure. The minimum calculated factor of safety in the strain gauge cavity is 1.35 against the 3,400 psi pressure and 1.11 against the 9000 psi requirement. The pressure of 35,000 psi in the loop occurs in the wall of the four-pin header shell. This analysis has been substantiated by a strain gauge cavity test run to 15,000 psi without failure, for a minimum wall thickness this results in a pressure capability of at least 20,942 psi. The header shell material is 1018 carbon steel, which was selected for its compatibility with the glass seals at the connector pins. One side of the header shell is hermetically sealed and the other is potted, thus the shell wall is 1018 carbon steel is not subject to corrosion. The gold joints, 17-4 PH stainless steel, 1018 carbon steel and 17-4 PH are also not known to corrode in a dry atmosphere. The gold plated brass connector pins are similarly corrosion resistant.
1977673-6	215W05: Failure of material.	None for single failure.	GE INTERFACE: None for single failure. Possible loss of common for second failure (leakage) of electrical feedthrough connector and potential (position of non resistive in electronic cavity.	B. Test: Component Acceptance Test - the electrical feedthrough is pressure tested as a detail part at the vendor (Kulite Semiconductor, Inc.). This test consists of pressurizing the feedthrough with 9000 psi water or alcohol and holding it for 1 minute after which a helium leak test is done. The maximum helium leakage allowed is $1 \times 10^{-8}$ ac/sec at 1 atmosphere. The feedthrough is subsequently welded into the pressure transducer. It is not possible to pressure test this weld. PQA Testing - It is not possible to pressure test the feedthrough connector during the PQA test.  Certification Test - the pressure transducer completed the 10 year structural vibration and shock certification requirement during 10/81. Qualification Test - A burst test on the electrical feedthrough was done on 12/11/80. This test unit held a pressure of 35,000 psi, without any signs of leakage (design requirement is 9000 psi).
				C. Inspection: The pressure sensing diaphragm stainless steel 17-4 PH, is

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Digitized by srujanika@gmail.com

NAME  FATHER  
P/M  MOTHER  
GAT  BROTHERS  
\*  SISTER

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Page: 3  
Peter M. Morris

Page 10

100 Years of Service

verified by random inspection of the material certification ticket). The first three units from the previous sampling trip are being inspected; the last unit is not. Engineering change 42444-499 required that all four units be X-ray inspected (presently 3 of the existing 7 flight units were inspected). Engineering change 42444-499-1 is in process and will downgrade the five non-compliant units to non-flight status, after those units are deprocessed.

## **B. Picture history - Story.**

B. General Information  
Posted by NIST-G-MI

P. Standard Inc.

**Operation 00 Radio - Crew Response** -  
000: When GEM transmission should begin as soon as gap is  
closing, crew response is to continue transmission. No  
further response is necessary unless single failure is  
undetectable by crew or ground.

*Journal of Early Christian Studies*

**Reference** manufacturers flight rules define RRU as tool for  
use of operational test.  
RRA checklist and FDR procedures verify hardware integrity  
and Systems operator status prior to RRU.  
And Open Data System allows ground monitoring of RRU  
systems.